

We claim:

1. A method of color masking an image comprising:  
reading color values of an image sample and a corresponding change of an attribute  
5 of the image sample; and

based on the color values of the image sample, mapping the change in the image sample attribute to a change in color components of the image sample that is equivalent to the change in the image sample attribute, yet reduces visibility of the change in the image sample attribute for the specific color values of the image sample.

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2. The method of claim 1 wherein the image sample attribute is luminance.

3. The method of claim 1 wherein the image sample attribute is chrominance.

- 15 4. The method of claim 1 wherein the image sample attribute to be modified changes based on the color values of the image sample.

5. The method of claim 1 including:

repeating the method of claim 1 to effect changes to image sample attributes of image  
20 samples in an image as part of a process to encode a substantially imperceptible watermark in the image that carries auxiliary data.

6. In a watermark encoder, a user interface method comprising:

presenting a user interface to enable a user to control strength of a watermark to be  
25 encoded in a specified color or color region;

based on user input, controlling strength of a watermark encoded in the specified color or color region.

7. The method of claim 6 including:

providing visual feedback to the user to show how changes in the specified color or color region change an image encoded with the watermark.

5           8. The method of claim 6 including: enabling the user to specify a color region by enabling the user to select a portion of an image to be watermarked and deriving a color or color region from image samples in the selected portion.

9. The method of claim 6 including:

10           altering the strength of the watermark in the specified color or color region so as to allow for a smooth transition in watermark strength between the selected color or color region and other colors or color regions.

15           10. A computer readable medium on which is stored software for performing the method of claim 6.

11. A method encoding an image with a digital watermark, wherein the image comprises a plurality of color channels, said method comprising:

determining a color characteristic for a group of image samples;

20           based at least in part on the characteristic, determining for the group of image samples which of the plurality of color channels should receive encoding;

transforming from the group of image samples at least one determined color channel that should receive encoding into a transform domain; and

25           altering transform domain coefficients of the at least one determined color channel to encode the digital watermark.

12. The method of claim 11, further comprising transforming the altered color channel into a spatial domain.

13. The method of claim 11, where the characteristic identifies which of the color channels will best hide the digital watermark in terms of visibility.

5 14. A method of encoding a color image with an auxiliary signal, wherein the auxiliary signal comprises encoding values, and wherein the color image comprises an array of color values, said method comprising:

providing a set of encoding values for an image sample;

determining a color characteristic for the image sample based on its color values; and

selectively scaling color values in the image sample based on the color characteristic.

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15. The method of claim 14, wherein scaling effects a change in luminance.

16. The method of claim 15, wherein the scaling comprises a scale to black.

15 17. The method of claim 15, wherein the scaling comprises a scale to white.

18. The method of claim 14, wherein the color characteristic comprises yellow content.

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